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On the November Meteors. By W. Masters, Professor at Kishnaghur College, Bengal.

(*Addition to the Letter of 21st November*, p. 202.)

As a sequel to my letter regarding the November meteors, I beg to forward the following particulars.

The 27th to the 29th Nov., and 7th to 12th Dec. are dates for observing meteors of a similar kind.

Diverging meteors were not seen or detected again till half-past 2 A.M. of the 12th Dec.; they might have come on at an earlier hour; and they appeared to have passed off by 3 A.M.

They shot divergingly and with great rapidity, not from a point near δ *Leonis* or ε *Leonis*, but some point to the westward of these, between κ in the muzzle of *Leo Major* and the stars in the foot of the *Lynx* and the tip of its tail: some point about 29° or 30° of North Declination and 136° of Right Ascension. They darted out at the rate of about three per minute, were small, described short and thin arcs of light, and left no traces; hence it was difficult to fix with any degree of precision upon the exact point of divergence. Some showed themselves only as moderate blazes of light about 40° or 50° from this point, without any visible arc of light or course. A bright meteor with a long train shot across the area of divergence from nearly due south to north, or from *Alphard* in *Hydra* to ϑ in *Ursa Major*. This display of meteors had nothing brilliant or exciting in it; but notwithstanding its tameness I think it should be recorded.

Dec. 26, 1866. *Kishnaghur.*

Determination of the Longitude of the Sydney Observatory from Observations of the Moon and Moon-culminating Stars, made in the years 1859–1860. By E. J. Stone, Esq.

The late Director of the Sydney Observatory, Mr. Scott, has published two Volumes of Observations for the years 1859 and 1860. I find in these volumes forty-nine observations of the Moon at Sydney within less than 40m. variation in R.A. of a corresponding observation at Greenwich, each observation of the Moon being accompanied with at least one moon-culminating star common to both Sydney and Greenwich. I have compared these corresponding observations. The common stars only were used for the determination of clock error. The tabular

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R.A. of the Moon for the Sydney observations has been interpolated from the time of observation. A slight correction has consequently been applied to the tabular R.A. of the Moon for Greenwich transit, as extracted from the *Nautical Almanac*, to obtain the result which would have been obtained by direct interpolation for the time of observation. The errors of Burckhardt's Tables in 1859 and 1860 are generally sufficiently large to render this correction necessary.

The longitude has been separately determined from observations of the two limbs of the Moon. The mean of these separate results has been adopted as the final result.

Attention has been confined to those nights on which one common culminator, at least, has been observed both at Sydney and Greenwich. All errors depending on assumed tabular places are thus eliminated, and as it is an invariable rule to observe the culminators with the Moon at Greenwich, only a few observations picked up in general under unfavourable circumstances are thus rejected. No observation has been rejected from mere discordance of result.

1859.

Date.	Number of Stars of Comparison.	Resulting Longitudes. ☽ 1 limb.	Resulting Longitudes. ☽ 2 limb.
June 8, 9	1	10 4 51·49	
9, 10	1	45·26	
15	2	...	54·46
July 9	1	48·32	
11	2	50·00	
12, 13	4	41·15	
17, 18	2	...	48·99
21, 22	1	...	52·41
Aug. 12	1	43·29	
19	1	...	43·33
22	1	...	46·07
Sept. 6, 7	2	44·01	
9	2	48·42	
17	1	...	49·23
Oct. 4, 5	2	35·63	
6, 7	2	45·47	
8	1	44·39	
12	2	...	43·29
Nov. 3	2	45·96	
4	1	50·41	
Dec. 2, 3	1	43·08	
5	2	41·73	
8	2	45·83	
14	1	...	46·02

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Weighting the results in accordance with the number of culminating stars observed, we have from observations of first limb,

h m s
10 4 45·05. Weight 58.

From observations of second limb,

h m s
10 4 48·08. Weight 27.

1860.

Date.	Number of Stars of Comparison.	Resulting Longitudes ☽ 1 limb.	Resulting Longitudes ☽ 2 limb.
Jan. 4	2	10 4 41·79	
9	1	...	45·26
Mar. 1	1	44·09	
5, 6	1	36·89	
Apr. 2	2	45·53	
4	2	48·16	
6	2	...	56·15
7	2	...	50·32
8	1	...	49·81
9	2	...	48·14
30	2	43·73	
May 1	1	44·99	
2	2	45·75	
3	1	48·06	
4	2	47·81	
June 30	1	53·13	
July 3	2	...	50·69
6	1	...	57·10
Aug. 6, 7,	2	...	48·13
27	2	48·89	
Oct. 5	2	...	45·36
Nov. 1	2	...	47·58
2	1	...	53·41
22	2	46·08	

Weighting the observations as before, we have from observations of the first limb,

h m s
10 4 45·81. Weight 47.

From observations of the second limb,

h m s
10 4 50·05. Weight 40.

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Hence, combining the observations of the two years, we have for the resulting longitude,

h	m	s	
10	4	45·39	from observations of first limb.
10	4	49·26	from observations of second limb.

or, as the final result,

$$10^{h}\ 4^{m}\ 47^{s}{\cdot}32.$$

Approximate relative Dimensions of Seventy-one of the Asteroids. By E. J. Stone, Esq.

In the Supplement to the *Nautical Almanac* for the year 1868 will be found the mean opposition magnitudes of 71 of the asteroids. A considerable number of them have been determined by Mr. Pogson and may be considered entitled to great confidence. If we assume that the surfaces of the asteroids have equal reflective powers, we can, from these opposition magnitudes and the semi-axes major of the orbits, determine the relative dimensions of the mean reflecting surfaces of the asteroids. The relative diameters thus calculated are given in the following table. To turn the results into miles I have adopted diameters of *Ceres* and *Pallas* from the observations of Sir W. Herschel and Lamont.

Since the completion of these results I have found that the dimensions of the first 39 have been computed, from different data, by Dr. Bruhns, *De Planetis Minoribus*.

Name of Asteroid.	Diameter in Miles.	Name of Asteroid.	Diameter in Miles.
1. Ceres	196	16. Psyche	75
2. Pallas	171	17. Thetis	50
3. Juno	124	18. Melpomene ...	51
4. Vesta	214	19. Fortuna	56
5. Astrea	57	20. Massilia	65
6. Hebe	92	21. Lutetia	39
7. Iris	88	22. Calliope	78
8. Flora	61	23. Thalia	47
9. Melio	76	24. Themis	24
10. Hygeia	103	25. Phocea	36
11. Parthenope ...	63	26. Proserpine ...	44
12. Victoria	51	27. Euterpe	50
13. Egeria	60	28. Bellona	65
14. Irene	65	29. Amphitrite ...	83
15. Eunomia	92	30. Urania	44